

that are so wantonly brought against them. I know some of these men. I have met the most distinguished of them, who has been for years under most virulent attack. I have gone through his laboratories, I have witnessed his performance of a vivisection experiment, which was of the character of most severe major operations. To accept the charges of cruelty against scientists of this type—this is a thing impossible to me.

ERNEST THOMPSON SETON: I learn now from your reply to the Baynes article that you (the opponents of medical science, called antivivisectionists) are opposed to all experiments on living animals, and that you utterly condemn the work of the Pasteur Institute, the Rockefeller Institute and allied laboratories. I have to thank the studies of such institutions for the fact that my wife is alive today. Kindly accept my resignation from the Vivisection Investigation League, to take effect immediately.

COLONEL DAVID S. WHITE, Chief Veterinarian of the American Expeditionary Forces: Anyone who is familiar with what vivisection has done for mankind and animal kind must realize its value to the world.

WILLIAM J. MAYO, M. D., The Mayo Clinic, Rochester, Minn.: My brother and I are strongly in favor of vivisection. In the clinic there are large laboratories in which a number of physicians are constantly at work on investigations which depend on animal experimentation.

PRESIDENT ANGELL of Yale University: We find no obstacle to the practice of animal experimentation in any intuitive moral convictions, nor in the traditional morality of our race.

## ANTIVIVISECTION\*

By CHESTER ROWELL, LL.D.  
Berkeley

### I

THE usual antivivisection bill has been introduced in the legislature, this time under the sponsorship (presumably "by request") of Senator Roy Fellom of San Francisco. It would, the dispatches say, "forbid universities, research laboratories and experimental stations from using animals for experiments or demonstrations of any kind."

This is the regular biennial attack, ostensibly on "cruelty," but actually on science. It has never passed the legislature and would be vetoed if it did. Even the periodic efforts to pass it by initiative have met with decisive defeat. Nevertheless, because the opponents of science are persistent, its defenders must be vigilant.

That the real opposition is to science rather than to "cruelty" is shown by the fact that these bills always authorize the infliction of pain on animals for other purposes, but prohibit scientific experiments even without pain. They all permit branding, dehorning, spaying and gelding on farms, without anesthetic, but forbid opening the vein of a mouse or a guinea pig in the laboratory, even under anesthesia. Most of them would prohibit feeding one rat on wheat and another on corn, to study the comparative processes of digestion.

\* Reprinted from the "World Comment" column of the *San Francisco Chronicle*, March 9, 1933.

They permit the slaughtering of cattle for food and the poisoning of squirrels for protection, but they would forbid a pin-prick in a rabbit to measure the dose of insulin to save a human life.

The "cruelty" part of the crusade is simply untrue. If the torture tales of current antivivisection pamphlets were correct, then every university president in the United States, every dean of every medical school and every doctor you personally know would be a liar. These are the men to whom we have entrusted the guidance of our youth and the safeguarding of our lives. If they were men who would solemnly lie to the world, on a matter of which they have personal knowledge and cannot be honestly mistaken, that would be worse than the "tortures" of which they are accused. Better close our colleges than have our sons and daughters corrupted by such men, and better die untreated than permit ourselves to be operated on by a surgeon who would lie about an operation on a dog. Instead, these are the very men whom we trust above all others.

The antiscience attack is the more insidious because fewer people are equipped to check its statements. The allegation is that animal experiments have added nothing to human knowledge, anyway. But careful reading will usually disclose that the real meaning is that there is no such knowledge to add to. It is impossible to deny that animal experiments discovered antitoxin and insulin, but it is possible to question whether these were worth discovering. Nobody who knows the facts, to be sure, does question it; but there are many who do not know the facts. It is possible to think that it is right to make soup of the flesh of slaughtered cattle, but wicked to make adrenalin of their glands. Absurd as it seems, some persons do think just that.

So let us get two things straight:

First, "vivisection" is not torture.

Very few laboratory experiments involve cutting, and these are done under an anesthetic, whenever it would be used in operations on human beings. This writer has had done to himself, with and without an anesthetic, practically every surgical thing that is done to animals in laboratories—the last one five minutes before this paragraph was written. And we have all inflicted on rats, to get rid of them, worse suffering than they ever undergo in laboratories.

Most laboratory experiments are medical, not surgical, and involve no more discomfort to the animals than the same diseases do to men. If one sick rabbit will save a thousand sick babies, is not that worth while?

And, second, the real opposition is to science. In a democracy men have that right. A man need not believe that quinin kills malaria or that vaccination prevents smallpox. He may even think that strychnin is not poison. But he must not, on that belief, administer it to others. Neither should he have the power, because he does not know that antitoxin cures diphtheria, to forbid the pin-pricks in horses and guinea pigs, required for production of antitoxin and the measurement of its dosage.

The democratic right not to know the truth does not alter the fact that it is the truth. The laws of nature still operate, whether you "believe in" them or not. Nobody who recognizes the existence of medical knowledge doubts that animal experimentation has contributed enormously to it. To prohibit the use of animals in the Wassermann test for syphilis would be like prohibiting the use of the microscope in examining water for typhoid. Men do have syphilis and water does carry typhoid, even if there are those who choose not to believe it.

The fact is that medical research, mostly on animals, has already banished from the earth most of the plagues that once afflicted mankind and is on the way to control the others. Even George Washington and Louis XIV were pockmarked with smallpox. Now almost nobody has it. We no longer fear cholera, typhus, bubonic plague, or yellow fever. Malaria is under control; diphtheria preventable and curable; typhoid fever possible only by neglect; and most of the other contagious diseases dwindling. Tuberculosis is understood and has become a minor factor in the death rate. Influenza is still a mystery and cancer baffles us. Some thousands of white mice are now being used in investigations to unlock its secret. Shall we make this pursuit of knowledge a crime?

## II\*

This is more about "vivisection."

Senator Roy Fellom and numerous others write to explain that a bill recently criticized in this column is not against vivisection generally, but merely forbids the sale of condemned dogs from the pound for that purpose. The information that the bill was general came from an Associated Press dispatch from Sacramento, and the arguments then made are still good against such a bill and the perennial agitation for it. Only a part of them would apply to this separate dog pound bill. They do hold, however, against the motives of most of its supporters, whose letters show that their real opposition is to vivisection generally. They are interested in this bill as a first step.

For the dog pound bill separately, if it were separate—as it is in the minds of a few, but not of most of its advocates—there are arguments which, though not conclusive, are sincere and practical. But even these would have no force if it were not for the lurid fictions circulated by the antivivisectionists. If people knew what happens to dogs in laboratories, the humane work of the pounds in taking up stray, disabled and unwanted dogs would not be hampered by the figment of their possible "torture." It is no worse for a dog to be chloroformed in the laboratory than to be cyanided in the pound. Either fate is a mercy to the only dogs on which it is imposed. And even to meet this point no law is necessary, since any pound which finds itself handicapped by it can meet it by a rule of its own.

It cannot be too much emphasized that the first question of this whole issue is one of fact. If the

things described in the antivivisection pamphlets do happen, they ought to be stopped. If the men who, of their own knowledge, say that they do not happen are liars they ought to be ejected in disgrace from their present positions in charge of the education of the youth of the country and the training of those who are to guard its health. The scientific aspects of the problem may be arguable (though no scientist does argue them), but the question of fact is not. These things are or are not facts, and the charge that they are facts is capable of proof or disproof by evidence. Until there is agreement that these torture tales are or are not true there is no basis of fact on which to conduct the rest of the argument.

The evidence that they are not true comes from absolutely every person who has first-hand knowledge, and whose word would be taken as conclusive on any other subject. These are the men to whom we entrust our lives and the mental and moral integrity of our children. They are authorized by law to administer poisons, to cut up living human beings, and to determine upon what knowledge and precepts the coming generation shall enter responsible life. They attend us in birth and ease us in death, and are entrusted, all our lives, with a responsibility and a confidence which we would grant to few other men. On any other question their word would be unhesitatingly accepted. And they say, on their honor, and on personal observation, that these things are not true.

The evidence on the other side is nearly all unverified and second-hand, presented by those who do not personally know whether it is true or false. Try it out yourself. Ask whichever physician you personally know to be an honorable gentleman, whose word you would take on any other subject, what he has personally seen in laboratories. Ask any antivivisection circulator of pamphlets which of the things in that literature he or she has personally seen. The answer, of course, will be "None." Read the literature itself, not on its science or antiscience, but on its sheer allegations of fact. Eliminate outright any quotation which does not state from what book it is taken, giving page and date of publication. No quotation which omits these verifactory details is worthy of credence. Actual study of many such quotations shows that the words "under complete anesthesia" have been deliberately omitted from them. Where these data are given, look them up in the original book. You will be surprised.

Examining the evidence in this way, nine-tenths of it simply disappears. What is left?

A few things. Cutting in the brain is done without anesthetic, for the same reason as cutting hair or fingernails. Hypodermic injections and vein punctures are done without anesthetic, on animals as on humans, because they hurt less than the anesthetic itself. There are authentic accounts of horribly painful experiments, in the days when human surgery had also to be done without the then unknown mercy of anesthesia. And there are a very few investigations—so rare that most men who have spent their whole lives in laboratories have never seen them—that have to be conducted

\* From the *San Francisco Chronicle*, March 24, 1933.

painfully, on conscious animals. Such pain is inflicted a million times on farms to once in laboratories, and can be done in no laboratory without the express permission (almost never asked or given) of the dean. And there is the direct testimony of a few discharged laboratory workers that the doctors are liars. Evidently somebody is. There is unanimous agreement that nearly all the experiments are medical and dietary; not surgical. The surgical ones are done under the same precautions as on humans.

These are questions of physical fact, capable of ascertainment. Until they are agreed on, there is nothing to discuss on the scientific or human side. Why argue whether it is useful or ethical to "torture" animals, unless in fact they are tortured?

149 Tamalpais.

### SUBCUTANEOUS EMPHYSEMA WITH ASTHMA\*

By H. D. VAN FLEET, M.D.

H. MILLER, M.D.

AND

A. J. SCOTT, M.D.

Los Angeles

DISCUSSION by J. J. Singer, M. D., Los Angeles; Hugh K. Berkley, M. D., Los Angeles.

**S**UBCUTANEOUS emphysema with asthma is a rare condition. A careful search of the literature reveals only fifteen cases, to which we are now adding four, thus making a total of nineteen.

The mechanics of the production of subcutaneous emphysema are similar to those which may, at times, produce spontaneous pneumothorax. The sequence of events may be outlined as follows. An obstruction in a small bronchus or bronchiole, acting as a one-way valve, allows air to enter a part of the lung on inspiration, but hinders or blocks its normal escape on expiration. With the increase in volume and pressure of the trapped air the vesicles balloon, the intervening partitions rupture, allowing the vesicles to coalesce and thus form blebs or bullae. With the onset of violent coughing and respiration, as in a severe asthmatic attack, there are wide and rapid swings in the differential between pulmonary and intrapleural pressure, such that a bulla or bleb ruptures, and the air from the lung then escapes either into the pleural cavity to produce a spontaneous pneumothorax or, following the reflections of the pleura and pericardium or the perivascular tissues, invades the mediastinum (Kelman<sup>1</sup>). Spreading upward through the mediastinum, the subcutaneous tissues are invaded and subcutaneous emphysema occurs, extending upward to the neck, occasionally onto the cheeks, downward on the arms to the wrists, over the thorax, and even down on the abdomen to Poupart's ligament and beyond. Not all cases have the same distribution; some are more extensively involved than others. But the picture is characteristic and



Fig. 1, Case No. 1.—Note swelling right side of neck.

the crepitation of the skin typical. The individual looks swollen over the involved areas.

Joanides and Tsoulos<sup>2</sup> conclude from animal experiments, using the dog, that simple subcutaneous emphysema is harmless.

We report four cases whose symptoms are similar in all respects to the published cases.

#### REPORT OF CASES

**CASE 1.**—Esther I., ten years old, was seen by Doctors Piness and Miller in October, 1924, with an attack of asthma which had persisted for the previous forty-eight hours.

*Family History.*—Father and maternal aunt had asthma.

*Past History.*—In infancy had eczema of arms and legs. The first attack occurred in the winter, and persisted throughout the year. The father owned horses, goats, and chickens, and the child was free of asthma when away from home.

Skin tests showed the patient to be sensitive to her mattress, and its removal was advised.

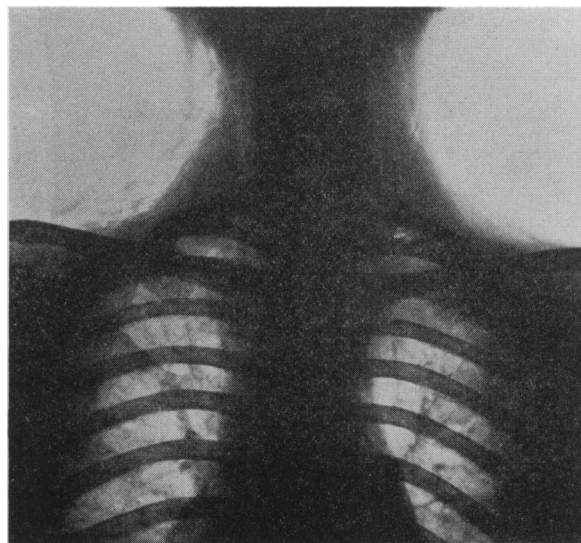


Fig. 2, Case No. 1.—Emphysema subcutaneous right side neck.

\* The authors wish to thank Dr. Lewis Gunther for the privilege of reporting Case No. 3. They also wish to thank Dr. L. Visscher for assistance in translating the Dutch articles, and Dr. J. M. de los Reyes for assistance in translating the articles in Spanish.